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EXAMINER	
ROBINSON, ELIZABETH A	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,424	SCHLOSSMAN ET AL.	
	Examiner	Art Unit	
	Elizabeth Robinson	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-20,41,42 and 48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-20,41,42 and 48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1- 3-20, 41, 42 and 48 are currently pending.

Amendments

The examiner notes the amdendments to Claims 15 and the specification, and agrees that this addresses the indefiniteness issues with regards to the formulas of claim 15 raised in the previous Office Action.

Claim Objections

Claims 3-7 and 10-12 are objected to because of the following informalities:

Regarding claim 3, 37 CFR 1.75(c) states (see MPEP 608.01(n) Dependent Claims):

37 CFR 1.75. Claim(s).
(c) One or more claims may be presented in dependent form, referring back to and further limiting another claim or claims in the same application...

Claim 3 depends from cancelled claim 2, and does not refer back to a previous claim. Claims 4-7 and 10-12 all depend from claim 3 and are thus also objected to. In order to further prosecution, the Examiner is interpreting claim 3 to depend from claim 1.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 3-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the third line adds the limitation that the coated powder has no reactive functional groups. The specification of the instant application (Page 15, lines 21-24) teaches that the coatings have a low proportion of unreacted functional entities, but does not teach no reactive functional groups. Claims 3-12 all depend from claim 1 and are thus also rejected.

Claims 13 and 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 13, the formula (8) does not appear to be a formula for a conventional siloxane. The formula would have a structure –Si-O-Si-Si-O-Si- instead of the conventional –Si-O-Si-O-Si- structure. The examiner is interpreting this to be a stoichiometric representation indicating significantly more silicon than titanium in the structure. Further, if this is meant to be a standard structural formula, the side groups, as drawn, would be methyl groups.

The term "cosmetically stable" in claim 15 is a relative term, which renders the claim indefinite. The term "cosmetically stable" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. There is no time scale, pH range, temperature range, etc. that defines consistently what is meant by cosmetically stable. Claims 16 through 20 all depend from claim 15 and are thus rendered indefinite.

Claim Rejections - 35 USC § 102

Claims 1, 3, 8, 9, 13, 14, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Glasel et al (WO 2000/22052). The examiner is using Hinterwaldner et al. (US 6,720,072) as the English language equivalent of this document.

Regarding claim 1, Hinterwaldner (Column 2, lines 8 through 46) teaches a metal oxide particle (powder) coated with a compound of the form –B-X, where X is a reactive functional group and where B has the form:

$$—(MeO)_x Me(O)_{y1}—(R)_{y2}— \text{ or } —R(O)_z—$$

where Me is a metal or semimetal, and x can be 0 to 100, and y1, y2 and z can be 0 or 1. Hinterwaldner (Column 4, lines 33 through 35) further teaches that the metals or semimetals can be different and that the metals are chosen from those taught in Column 4, lines 3 through 25). The preferred metals include Si, Al, Ti, and Zr. Thus, with the first metal of the above formula being Si and the second being Al, Ti, or Zr, Hinterwaldner teaches a coated powder where the coating is comprised of siloxy metal

units. Hinterwaldner (Column 2, lines 8 through 46) further teaches that the free valences of Me can be bonded to another group B via an oxygen atom and thus the siloxy metal groups are interconnected by oxygen atoms. Hinterwaldner (Column 5, line 66 through Column 6, line 4) teaches that the reactive functional groups can crosslink with other functional groups already present in the particles. After this crosslinking, there would be no, or at least a low proportion of, reactive functional groups.

Regarding claim 3, Hinterwaldner (Column 4, line 52) teaches that the siloxy metal unit can have the form –Si-O-Ti-. Titanium is a metal with two or more valences. Hinterwaldner (Column 2, lines 8 through 46) further teaches that the free valences of the Me can bond via an oxygen atom to the core particle. A first oxygen atom can be bonded to the silicon atom as is taught in Column 4, line 65 through Column 5, line 14).

Regarding claim 8, Hinterwaldner (Column 9, lines 33 through 62) teaches that the coating can be formed in two stages, by adding the radical B and then adding the group X, by way of a metal alkoxide reagent. The list of suitable compounds to be added first includes tetramethoxysilane, a multifunctional silicon compound. Hinterwaldner (Column 9, line 63 through Column 10, line 18) further teaches the metal alkoxide reagents, which include isopropyl triisostearoyl titanate, a multifunctional organometallate compound. As stated above, Hinterwaldner teaches that the reactive functional groups can crosslink with other functional groups already present in the particles.

Regarding claim 9, Hinterwaldner (Column 9, line 63 through Column 10, line 18) teaches the metal alkoxide reagents. These include organotitanates. Hinterwaldner

(Column 9, lines 63 through 66) further teaches that at least one valence of the metal may be satisfied by a radical other than an alkoxide. If two valences are so satisfied, the organotitinate is difunctional. Hinterwaldner (Column 9, lines 46-47) teaches that the list of suitable siloxy compounds includes silicon compositions as evidenced by Arpac et al. (DE 4020316). A formal English translation is provided with this Office Action. Arpac teaches these compounds on Page 3, lines 5 through 30. These compounds include trialkoxysilanes.

Regarding claims 13 and 48, as stated above in the discussion of claim 1, the coating composition can have the form:

$$—(MeO)_xMe(O)_{y1}—(R)_{y2}— \text{ or } —R(O)_z—$$

where Me is a metal or semimetal, and x can be 0 to 100, and y1, y2 and z can be 0 or 1. The two metals can be different, and if the first metal is Si and the second metal is Ti, this formula meets the stoichiometry of the instant claim. Further with x=3, the compound meets the structure of the instant claim with a=1. Hinterwaldner (Column 2, lines 8 through 46) teaches that the free valences of Me can be bonded to another group B via an oxygen atom or to the core particle (powder substrate atoms) or to alkyl groups (residual unreactive groups) (Column 5, lines 33 through 37). As stated above, Hinterwaldner teaches that the reactive functional groups can crosslink with other functional groups already present in the particles. This would include another group B (other units of formula (8)).

Regarding claim 14, Hinterwaldner (Column 5, lines 33 through 37) teaches that the free valences of Me can be bonded to alkyl groups (hydrocarbon groups).

Claims 1, 3 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Akamatsu et al. (US 5,788,990).

Regarding claim 1, Akamatsu (column 1, lines 22-30) teaches a silicone (siloxy) based cured film on the surface of a powder. The coating film can comprise a silane compound and an organic metal curing catalyst (Column 3, lines 11-38). The curing catalyst can be tetrabutyl titanate. As evidenced by the DuPont™ Tyzor® Organic Titantates General Brochure (Pages 4 and 8), organic titanates cross-link silicone structures and permit a more rapid curing of the silicon. This cured crosslinked structure would have either a low proportion or no reactive functional groups.

Regarding claim 3, as evidenced by the DuPont™ Tyzor® Organic Titantates General Brochure (Pages 8-9), the crosslinked structure would have siloxy metal units with the formula –Si-O-M- and the additional valencies can provide additional crosslinking. The metal is titanium which has four valencies.

Regarding claim 42, Akamatsu (Column 3, lines 11-38) teaches that the functionalized silicon compound and the organometallate compounds are mixed together and then cured to form the coated powder.

Claim Rejections - 35 USC § 102/103

Claims 4 through 7, 10 through 12, 15 through 20, 41 and 42 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Glasel et al. (Hinterwaldner et al.). As stated above, Hinterwaldner teaches a coated powder that meets the limitations of claim 3.

Regarding claims 4 and 5, Hinterwaldner (Column 7, lines 5 through 8) teaches that the particles of the invention are generally insoluble in water (hydrophobic). Hinterwaldner (Column 9, lines 33 through 62) further teaches that the coating can be formed in two stages, by adding the radical B and then adding the group X, by way of a metal alkoxide reagent. The list of suitable siloxy compounds to be added first includes silicon compositions as evidenced by Arpac et al. (DE 4020316). Arpac (Page 3, lines 5 through 30) teaches these compounds, which include trialkoxysilanes with a long chain pendant group, for example, triethoxy hexylsilane. This pendant group would provide lipophilic properties to the coating composition. Hinterwaldner (Column 9, line 63 through Column 10, line 18) teaches the metal alkoxide reagents, which include isopropyl triisostearoyl titanate, the same compound as the isopropyl titanium triisosterate of the hybrid coating mixture of Example 1 of the instant application. With the same titanate and a functionally equivalent silane, the composition would inherently have the same properties of being lipophilic and dispersible in silicone fluids.

Regarding claim 6, as stated above, Hinterwaldner teaches a coated powder with a coating comprising siloxy metal units. Hinterwaldner (Column 2, lines 8 through 46) teaches that the coating B is bonded covalently to the core particle. Hinterwaldner (Column 3, lines 43 through 51) further teaches that the core particles are smaller than 1 mm and preferable of nanometer size. The number of chains attached to the core particle and the weight percentage of the chains is taught in Column 3, lines 33 through 42. There can be as many as 100 side chains attached to the core particle. The side chains can account for 90% by weight of the particles. Hinterwaldner (Column 2, lines 8

through 46) further teaches that other free valences of Me (Si or Ti) can bind to the core particle. Hinterwaldner does not explicitly state that the particle is completely coated. However, with the small particles size and the large number of side chains bonded multiple times to the core particle, the coating would extend over substantially the entire outer surface of the particle. Therefore applicant's composition is anticipated by Hinterwaldner, or in the alternative, would have been obvious to one of ordinary skill in the art based upon the prior art of Hinterwaldner.

Regarding claim 7, Hinterwaldner (Column 3, lines 33 through 42) teaches that the particle can be coated with multiple siloxy metal chains. As stated above, each chain can be comprised of multiple siloxy metal groups, thereby having metallate units interconnecting siloxy units. If x in the formula for B is greater than 1, the siloxy units are polysiloxy units.

Regarding claim 10, Hinterwaldner (Column 2, lines 8 through 46) teaches a metal oxide core particle. The metals are taught in Column 4, lines 3 through 25. Thus, the base particles can include titanium dioxide, aluminum oxide, and silicon dioxide, which are known pigments and fillers. Hinterwaldner (Column 10, lines 19 through 28) further teaches that the particles can be used in compositions for cosmetic areas. The particle size is taught in Column 3, lines 43 through 51 and can be as large as 1 mm, but is preferably in the nanoparticle range. This range overlaps the range of the instant claim.

Regarding claim 11, Hinterwaldner (Column 4, lines 3 through 25) teaches that the metal can be titanium, aluminum, tin, vanadium, zinc or zirconium.

Regarding claim 12, as stated above, the metal M can be titanium, and the coating is comprised of chains formed from siloxy units interspersed with organometallate units. Hinterwaldner (Column 5, line 66 through Column 6, line 4) teaches that the reactive functional groups can crosslink. Hinterwaldner (Column 9, lines 52 through 62) further teaches that the coating composition can be capped from a reaction of a metal alkoxide (an organometallate). Finally, Hinterwaldner (Column 2, lines 8 through 46) teaches that the free valences of the metal can bond to the core particle (powder substrate).

Regarding claim 15, as stated above, Hinterwaldner teaches a hydrophobic, lipophilic coating covalently bonded to a particle, which can be used in cosmetic compositions, via an oxygen atom. The coating composition can be comprised of organotitanate groups interspersed with siloxy groups. The organotitanate groups can be bonded to another coating material oxygen atom or to alkyl groups (hydrophobic organic moieties). The siloxy group can also be bonded to alkyl groups (hydrophobic organic moieties) and to oxygen atoms.

Regarding claim 16, Hinterwaldner (Column 2 line 64 through Column 3, line 4) teaches that the alkyl groups can have 1 to 50 carbon atoms. This range overlaps the range of the instant claims.

Regarding claims 17 through 19, as stated above, the organometallate is bonded to the siloxy (or polysiloxy, if x in the formula for coating B is greater than 1) through an oxygen atom. Hinterwaldner (Column 4, lines 59 through 66) teaches that the either of the metals can be the one that is bonded via an oxygen atom to the core.

Regarding claim 20, based on the formula for B taught by Hinterwaldner (Column 2, lines 8 through 46) the stoichiometric proportion of organometallate units to siloxy units is from 0.01:1 to 1:1. This overlaps the range of the instant claim.

Regarding the one-step process limitation of claims 41 and 42, the patentability of a product is independent of how it was made. Ex parte Jungfer 18 USPQ 1796, 1800 (BPAI 1991); Brystol-Myers Co. v. U.S. International Trade Commission 15 USPQ 2d 1258 (Fed. Cir. 1989). The burden is on applicants to show product differences in product by process claims. In re Thorpe 227 USPQ 964 (Fed. Cir. 1985); In re Best 195 USPQ 430 (CCPA 1977).

Regarding claim 42, Hinterwaldner (Column 2, lines 8 through 46) teaches a metal oxide core particle. The metals are taught in Column 4, lines 3 through 25. Thus the base particles can include titanium dioxide, aluminum oxide, and silicon dioxide, which are known pigments and fillers. Hinterwaldner (Column 10, lines 19 through 28) further teaches that the particles can be used in compositions for cosmetic areas.

Claims 4, 5, 10, 11, 13, 41 and 48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Akamatsu et al. As stated above, Akamatsu teaches a coated powder that meets the limitations of claim 3.

Regarding claims 4 and 5, Akamatsu (Column 1, lines 22-30) teaches that the powder is water-repellant (hydrophobic). While Akamatsu does not explicitly state that the particle is lipophilic and dispersible in silicone fluids, the coating has a large

percentage of silicone (Column 3, line 11-38) and thus would inherently have these properties.

Regarding claim 10, Akamatsu (Column 1, lines 51-58) teaches that the powder can be sodium acetate with a diameter of 10 μm to 2mm. This particle size overlaps the range of the instant claim. As evidenced by the Hawley's Condensed Chemical Dictionary – sodium acetate entry, this compound can be used in soaps (a cosmetic).

Regarding claim 11, Akamatsu (Column 1, lines 51-58) teaches that the metal can be titanium or tin.

Regarding claims 13 and 48, while Akamatsu does not teach a stoichiometric amount of silicon to titanium, the weight percentage of organic titanium curing catalyst is 0.01 to 10 parts by weight with respect to 100 parts by weight of the silicon and thus should meet the stoichiometry limitation of the instant claim.

Regarding claim 41, as stated above, the coating is formed in one step and has hydrophobic and lipophilic properties.

Response to Arguments

Applicant's arguments filed September 14, 2007 have been fully considered but they are not persuasive.

Regarding the arguments that the composition of Hinterwaldner has reactive functional groups and that the composition is not crosslinked, as stated above the functional groups can crosslink with other functional groups already present in the particles. This would include another group B and the particle cores. This would eliminate or reduce the number of functional groups. It is also noted that the

specification of the instant application teaches that the coatings has a low proportion of unreacted functional entities, but does not teach no reactive functional groups.

Regarding the argument that Hinterwaldner is not analogous art, as stated above, Hinterwaldner teaches that the particles can be used in cosmetic compositions and is thus analogous.

Regarding the argument regarding claim 9, as stated above Hinterwaldner teaches that the list of suitable siloxy compounds includes the silicon compositions of Arpac et al. (DE 4020316).

Regarding the arguments that Hinterwaldner does not disclose a one-step process, the claims of the instant application are product claims, not method claims.

All claim objections and 35 U.S.C. 112, second paragraph rejections from the previous Office Action are withdrawn, except for those which are again rejected in this Office Action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SUPERVISORY PATENT EXAMINER